

LS990005

09/840,000
patent applicationAmendments to the Claims – Current Status of Claims

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (cancelled)
9. (cancelled)
10. (cancelled)
11. (cancelled)
12. (cancelled)
13. (cancelled)
14. (cancelled)
15. (currently amended) A method for enhancing nucleic acid hybridization, said method comprising the steps of:
providing a substrate, said substrate comprising one or a plurality of microlocation(s), each microlocation comprising a DNA probe present on said substrate;
providing a buffer present on or surrounding said microlocation(s);
providing two or ~~more~~ to six electrodes adapted to receive charge, said two or ~~more~~ to six electrodes being separated from one another, separated from said microlocation(s) and separated from said buffer, but appropriately positioned so as to create an electric field in a range of 200 volts/cm to 10,000 volts/cm in said

L8990005

09/840,000
patent application

microlocation(s) without creating current flow in said microlocation(s) when said two or more electrodes receive charge;

providing an electrical source operatively associated with the electrodes for providing charge to said electrodes;

applying a sample comprising DNA to each of said microlocation(s); and

applying charge to said electrodes such that said DNA sample comprising DNA applied to each of said microlocation(s) is transported to said DNA probes probe present at each of said microlocation(s) under conditions sufficient for hybridization to occur.

16. (Original) The method of claim 15, wherein said microlocation(s) comprise a porous media.

17. (Currently Amended) The method of claim 15, which comprises the further step of applying charge to said electrodes such that at least one DNA component corresponding to said DNA sample comprising DNA applied to each of said microlocation(s) that is not hybridized with said DNA probes probe present at each of said microlocation(s) is transported away from said DNA probes probe present at each of said microlocation(s).

18. (Currently Amended) The method of claim 17, wherein the steps of:
applying charge to said electrodes such that said DNA sample comprising DNA applied to each of said microlocation(s) is transported to said DNA probes probe present at each of said microlocation(s) under conditions sufficient for hybridization to occur; and
applying charge to said electrodes such that at least one DNA component corresponding to said DNA sample comprising DNA applied to each of said microlocation(s) that is not hybridized with said DNA probes probe present at each of said microlocation(s) is transported away from said DNA probes probe present at each of said microlocation(s);

are repeated at least once.

19. (Previously Amended) The method of claim 15, said device comprises a plurality of microlocations, wherein said microlocations each comprise a DNA probe having known binding characteristics, and wherein the DNA probe present at one

LS990005

09/840,000
patent application

microlocation differs from the DNA probe present at other microlocations in a known and predetermined manner.

20. (Cancelled)

21. (Previously Amended) The method of claim 15, wherein charge is applied to said electrodes in such a way as to produce a stirring or mixing motion, or cause a rotational motion at said microlocation(s).

22. (Currently Amended) A method for enhancing nucleic acid hybridization, said method comprising the steps of:

providing a substrate, said substrate comprising one or a plurality of microlocation(s), each microlocation comprising a DNA probe present on said substrate;

providing a buffer present on or surrounding said microlocation(s);

providing two or more to six electrodes adapted to receive charge, said two or more to six electrodes being separated from one another, separated from said microlocation(s) and separated from said buffer, but appropriately positioned so as to create an electric field in a range of 200 volts/cm to 10,000 volts/cm in said microlocation(s) without creating current flow in said microlocation(s) when said two or more electrodes receive charge;

providing an electrical source operatively associated with the electrodes for providing charge to said electrodes;

applying a sample comprising DNA to said microlocation(s);

applying charge to said electrodes such that said DNA sample comprising DNA applied to one or a plurality of said microlocation(s) is transported to said DNA probes probe present on said substrate at each of said microlocation(s) under conditions sufficient for hybridization to occur; and

applying charge to said electrodes such that at least one DNA component corresponding to said DNA sample comprising DNA applied to said microlocation(s) that is not hybridized with said DNA probes probe present on said substrate at each of said microlocation(s) is transported away from said DNA probes probe present on said substrate at each of said microlocation(s).

LS990005

09/840,000
patent application

23. (Previously Amended) The method of claim 22, wherein the steps of:
applying charge to said electrodes such that said DNA sample comprising DNA applied to said microlocation(s) is transported to said DNA probes probe present on said substrate at each of said microlocation(s) under conditions sufficient for hybridization to occur; and

applying charge to said electrodes such that at least one DNA component corresponding to said DNA sample comprising DNA applied to said microlocations that is not hybridized with said DNA probes probe present on said substrate at each of said microlocation(s) is transported away from said DNA probes probe present on said substrate at each of said microlocation(s);

are repeated at least once.

24. (Previously Amended) The method of claim 22, wherein said microlocations each comprise a DNA probe having known binding characteristics, and wherein the DNA probe present at one microlocation differs from the DNA probe present at other microlocations in a known and predetermined manner.

25. (Cancelled)

26. (Original) The method of claim 22, wherein said microlocation(s) comprise a porous media.

27. (Previously Amended) The method of claim 22, wherein charge is applied to said electrodes in such a way as to produce a stirring or mixing motion, or cause a rotational motion at said microlocation(s).

28. (Cancelled)